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ProPat, L.L.C.  
2912 Crosby Road  
Charlotte, NC 28211

EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

8

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-8

# Office Action Summary

Application No.

09/760,169

Applicant(s)

MURSCHALL ET AL.

Examiner

Nikolas J. Uhler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be ~~negated~~ by the manner in which the invention was made.

2. Claims 1-4, 6-8 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Rakos et al. (US6251505) in view of Oishi et al. (US5936048) further in view of Irick et al. (US3988295).
3. Rakos et al. teaches a composite multilayer film comprising a primary unfilled polyester film layer and a secondary polyester layer containing 1-8% by weight of finely divided silica particles. These particles have a diameter of 2.3 to 6.2 microns (abstract). This film is preferably made from polyethylene terephthalate (column 4 lines 33-35). This film may be uniaxially/biaxially oriented or un-oriented (column 4 lines 40-41). Secondary layers of polyester can be layered on one or both sides of the primary layer. The total thickness of the film is between 50-250 microns (column 5 lines 16-22). The filler material comprises silica particles that should not have a diameter greater than 13 microns and the film should not contain greater than 8% by weight of particles, as an excessive amount can result in the film having unacceptable haze and light transmission (column 5 line 38-55). Additionally, the layers of the film may contain any of the additives conventionally employed in the manufacture of polyester films.

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Examples are pigments, dyes, lubricants, anti-oxidants, antiblocking agents, gloss improvers, optical brighteners, and ultraviolet light stabilizers (column 6 lines 42-55). It is preferred that the primary layer of polyester contains little or no filler so as to maintain optimum optical properties (column 5 lines 53-56). Additionally, the composite film may be coated on one or both sides with one or more adhesion promoting coatings (Column 6, lines 61-62). In the examples, Rakos et al. discloses a number of formulations for films comprising 2 layers of polyethylene terephthalate. In example 1, the primary film is unfilled, and the secondary layer contains 5% by weight of silica particles. The composite film was 175 microns thick. This example had a luminescent transmittance of 50% (Column 7 example 1). In example 3, the primary layer was unfilled, and the secondary layer contained 7.5% by weight of silica particles. The composite film was 100 microns thick and had a luminescent transmission was 50% (Column 9, example 3). In example 2, the primary layer was unfilled, and the secondary layer contained 4% by weight of silica particles. The composite film was 178 microns thick and had a luminescent transmission of 70% (Column 8-9 example 2). Although Rakos et al. does not teach a film with a luminescent transmittance of 80% or higher, it is logical to believe from these examples that the transmittance of the film is a function of the film thickness and silica particle loading, with thicker films or films that contain higher loadings of silica having lower transparency, and vice versa. This would be particularly important for products requiring high transmittance, such as imaging media. Rakos et al. teaches that the degree of light transmission is important because if the media is too opaque, the image will appear dull and colors lose their vibrancy (column 1 lines 44-46). Rakos et al.

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allows for a silica particle loading as low as 1% by weight (described above). Therefore, the examiner takes the position that the film thickness and silica concentration is a results effective variable, and it would have been obvious to one with ordinary skill in the art at the time the invention was made to optimize the silica particle loading and layer thickness to achieve the desired level of transmittance. Further, because the transmittance can be controlled, the haze of the film can also be controlled. If the film were made with of a composition resulting in a transmission of 80% or greater, the haze would necessarily be below 20%. This is because the sum total of transmission, absorption, and reflection must equal 100%. If the transmission is 80% the haze is must be 20% or lower. Additionally, although Rakos et al. does not specifically teach a level gloss for this film, it does teach the use of gloss enhancing agents (as described above). It is logical to believe that the amount of gloss enhancing agent added is directly proportional to the glossiness of the resulting film, with films containing high concentrations of gloss enhancing agent being more glossy then films containing less gloss enhancing agent. Thus, the examiner take the position the amount of gloss enhancing agent is a results effective variable, and it would have been obvious to one with ordinary skill in the art at the time the invention was made to optimize the concentration of gloss enhancing agent to achieve the desired glossiness of the film. Finally, Rakos et al. teaches that the film can incorporate optical brighteners, as described above. It is logical to believe that the amount of optical brightener used is directly proportional to the brightness/whiteness of the film, with higher concentrations resulting in a brighter/whiter film. Therefore the examiner takes the position that the

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amount of optical brightener is a results effective variable, and it would have been obvious to one with ordinary skill in the art at the time the invention was made to optimize the amount of optical brightener used to achieve the desired yellowness index.

4. Rakos et al. does not teach the incorporation of .5-30% by weight of a flame retardant into the disclosed film, nor adding a UV stabilizer to the film, wherein the UV stabilizer is thermally stable at temperatures above 240°C.

5. Oishi et al. teaches a method for preparing a modified polymer resin (title). These polymer resins include polyester such as polyethylene terephthalate (Column 17, lines 43-45). Oishi et al. also teaches that in addition to a modified resin additive, an additive such as dimethylmethylphosphonate may be added to a resin to provide that resin with flame retardant properties (column 21 lines 4-11). Typically this flame retardant is added in an amount of 5-40% by weight (Column 23 lines 47-48). Additionally, Oishi et al teaches that ammonium polyphosphates are also a useful additive that can increase the flame retardant properties of a polymer resin (column 21, line 51-column 22 line 28). Oishi et al teaches that Organic phosphorous flame-retardants promote char formation, which prevents oxygen from being distributed to the burning surface and prevents the release of flammable gas (Column 21, lines 11-19).

6. Irick et al. teaches common UV stabilizers that are added to polyesters, polyolefins, ABS plastics etc... to protect them from the deleterious effects of solar radiation. These UV stabilizers include 2-hydroxybenzotriazoles (column 1, lines 10-15). Although Irick et al. does not teach that 2-hydroxybenzotriazole is thermally stable above 240°C, the examiner takes the position that this limitation is necessarily met. The

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UV stabilizer taught by Irick et al. matches one of the UV absorbent materials specified by claim 6. The examiner takes the position that the thermal stability of a UV stabilizer is a material property and because 2-hydroxybenzotriazole identically matches one of the materials specified by claim 6, which is dependent on claim 1, the temperature limitation required by claim 1 is necessarily met.

7. Therefore it would have been obvious to one with skill in the art at the time the invention was made to incorporate 5-40% by weight dimethyl methylphosphonate as described by Oishi et al. and a UV stabilizer such as 2-hydroxybenzotriazole, as taught by Irick et al. into the multilayer film described by Rakos et al.

8. One would have been motivated to make these modifications due to the teaching in Rakos et al. that the polyester film can contain known additives used in polyester films. Further, one would have been motivated to make these modifications due to the teaching in Oishi et al. that the flame resistance of a polymer resin such as polyethylene terephthalate can be improved through the addition of a flame retardant such as dimethylmethylphosphonate, and the teaching in Irick et al. that polyester resins show improved resistance to degradation from solar radiation when a UV stabilizer such as a 2-hydroxybenzotriazole is added to them.

9. Regarding the limitations, "is provided as a compounded first masterbatch," and "is provided in the first masterbatch or as a second compounded masterbatch," in claim 1. The examiner takes the position that these limitations are product-by-process limitations that do not appear to be further limiting in terms of evaluating the prior art since it is not further limiting in so far as the structure of the final product is concerned.

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"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

The examiner takes the position that the material taught by the combination of the Rakos et al., Oishi et al. and Irick patents results in a material meeting all of the final product limitations of claims 1-4, 6-8 and 12, in that the combination results in a material that comprises a crystallizable thermoplastic material (PET), a UV stabilizer that is thermally stable at temperatures  $>240^{\circ}\text{C}$  (2-hydroxybenzotriazole), .5-30% by weight of a flame retardant (dimethylmethylphosphonate), and is coated with one or more layers of a 2nd polyester (such as PET).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakos et al. as modified by Oishi et al. and Irick et al. as applied to claim 1 above, further in view of Gareiss et al. (US5712336).

11. Rakos et al. as modified by Oishi et al. and Irick et al. meets all of the requirements for claim 5, except for those stated below.

12. Rakos et al. as modified by Oishi et al. and Irick et al. does not teach adding .01-5% by weight of a UV stabilizer that is thermally stable at temperatures in excess of  $240^{\circ}\text{C}$ .



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13. Gareis et al. teaches a flame-proofed thermoplastic molding material that is comprised of a thermoplastic polyester and additives (abstract). The polyester preferably is made of polyethylene terephthalate (Column 2, lines 1-5). Gareis et al. also teaches that the thermoplastic materials may contain conventional processing assistants, such as UV stabilizers (Column 8, lines 57-61). Gareis et al. teaches that various substituted resorcinols, salicylates, benzotriazoles, and benzophenones are examples of UV stabilizers, and may be used in amounts up to 2% by weight. (Column 9, lines 1-4).

14. Therefore it would have been obvious to one with ordinary skill in the art to use up to 2% by weight of a UV stabilizer such as a benzotriazole as taught by Gareis et al. in the material taught by Rakos et al. as modified by Oishi et al. and Irick et al.

15. One would have been motivated to make this modification due to the teaching in Gareis et al. that up to 2% by weight of a UV stabilizer such as a benzotriazole is a suitable amount of UV stabilizer in order to impart UV stabilizing properties to polyester's, such as polyethylene terephthalate.

16. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rakos et al. as modified by Oishi et al. and Irick et al. as applied to claim 1 above, further in view of Schreck et al. (US5866246) and Kishida et al. (US5008313).

17. Rakos et al. as modified by Oishi et al. and Irick et al. teaches all of the limitations for claims 1, 9 and 10 except for those listed below.

18. Rakos et al. as modified by Oishi et al. and Irick et al. does not teach the use of a hydrolysis stabilizer comprising .1-1% by weight of an alkali metal stearate/carbonate or

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alkali earth-metal stearate/carbonate. In addition, these references do not teach the use of .05-.6% by weight of a phenolic stabilizer which has a molar mass greater than 500g, specifically a phenolic stabilizer such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate.

19. Schreck et al. teaches an oriented film comprising thermoplastic polymers, wherein the oriented film comprises at least one vacuole containing layer that comprises hollow particulates that are incompatible with the thermoplastic polymer (column 2, lines 44-50). Schreck et al. states that "thermoplastic polymers" comprise polyolefins, polyesters, polystyrenes, and polyamides (column 3, lines 57-64). In order to improve certain properties of the film, the thermoplastic polymer can contain additives (column 11, lines 15-20). These additives include stabilizers such as alkali metal stearates/carbonates, and phenolic stabilizers such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate. These stabilizers are added to the thermoplastic polymer in amounts between .05-2% by weight (column 12, lines 8-21). The Polymer Science Dictionary, 2nd edition, 1989 by Alger defines "Stabilizer" as "An additive used to reduce or eliminate degradation or its effect on properties." Further it is known in the art that phenolic stabilizers such as pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate are heat stabilizers that are added to thermoplastic resins in order to control discoloration and heat deterioration under high temperature conditions, as stated by Kishida et al. column 3, line 63-column 4, line 28).

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20. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate .05-2% of a metal stearate/carbonate, alkali earth-metal stearate/carbonate, or a phenolic stabilizer as described by Schreck et al. to the multilayer film described by Rakos et al. as modified by Oishi et al. and Irick et al.

21. One would have been motivated to make this modification due to the teaching in Schreck et al. that these stabilizers are added to improve various properties of a thermoplastic film, such as a film of polyester. One would have been further motivated to make this modification due to the teaching in Kishida et al. that pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate is added to thermoplastic resins as a heat/color stabilizing additive. One would have been still further motivated to make this modification due to the fact that it is well known in the art that stabilizers are compounds added to prevent the degradation of polymeric materials.

22. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakos et al. as modified by Oishi et al., Irick et al., Schreck et al. and Kishida et al. as applied to claims 9 and 10 above, further in view of Brunow et al. (WO 97/00284).

23. For the purposes of this investigation, Derwent abstract 1997-077496 is cited as an English language abstract of WO 9700284. All references to Brunow et al., unless otherwise indicated, are directed towards this English abstract.

24. Rakos et al. as modified by Oishi et al., Irick et al., Schreck et al. and Kishida et al. teaches all of the limitations of claim 11 as stated above, except for those limitations stated below.

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25. Rakos et al. as modified by Oishi et al., Irick et al., Schreck et al. and Kishida et al. does not teach adding .01-5% by weight of either or both of the following compounds in addition to a hydrolysis stabilizer: 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol, and 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,2,2-tetramethylpropyl)phenol.

26. Brunow et al. teaches a transparent amorphous sheet comprising polyethylene terephthalate and UV stabilizers. Preferred UV stabilizers are 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol and 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol (Derwent abstract). UV stabilizers are known to increase the weather ability of polymers and to improve the resistance of a polymer to discoloration. The examiner takes the position that the amount of UV stabilizer added to a polyester composition is a results effective variable. Adding more UV stabilizer to the polyester will result in a material that is more UV resistant. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to optimize the amount of UV stabilizer used to the range specified in order to obtain a desired level of UV resistance. Finally, although Brunow et al. does not teach that any of these UV stabilizers is thermally stable at temperatures greater than 240<sup>0</sup>C, the examiner take the position that this limitation is necessarily met. The UV stabilizer materials taught by Brunow et al. match the materials specified by claim 11 as suitable UV stabilizing materials. The examiner takes the position that the thermal stability of a UV stabilizer is a material property. Thus, because the material limitation of claim 11 is met, the temperature requirement of claim 1 is necessarily met.

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27. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add .01-5% by weight of a UV stabilizer such as 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol and 2,2',-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol as taught by Brunow et al. to the material taught by Rakos et al. as modified by Oishi et al., Irick et al., Schreck et al. and Kishida et al.

28. One would have been motivated to add the UV stabilizer due to the teaching in Rakos et al. that the polyester films can contain additives used in polyesters, such as U.V Stabilizers. One would have further been motivated due to the teaching in Brunow et al. that 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol and 2,2',-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol are known UV stabilizers which are added to polyesters, and the fact that it is well known in the art that the weather ability and resistance to discoloration of a film are improved through the addition of these types of materials.

### ***Response to Arguments***

29. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-872-9310

for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.



nju  
June 12, 2002



Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700